

# Fractions / Decimals Study Guide!

## Create equivalent fractions.

1. Always start with the original fraction
2. Multiply both the top and bottom numbers by the same number.

An equivalent fraction is a fraction that look the same but have a different amount of pieces.

Example

Create 3 more:

1	$\times 2$	2	$\times 3$	3	$\times 4$	4	$\times 5$	5
2	$\times 2$	4	$\times 3$	6	$\times 4$	8	$\times 5$	10

1.)  $\frac{1}{8}$  , , ,

2.)  $\frac{7}{9}$  , , ,

3.)  $\frac{6}{7}$  , , ,

4.)  $\frac{3}{5}$  , , ,

## Compare Fractions using like and unlike denominators.

1. Draw a picture
2. Create an equivalent fraction.

$$\frac{63}{75} < \frac{71}{75}$$

*(Note: In the original image, arrows indicate that 63 is 3 times 21 and 75 is 3 times 25.)*

$$\frac{28}{35} \times \frac{4}{5}$$

<

or

$$6 \times 5 = 30$$

$$7 \times 5 = 35$$

Compare:

1.  $\frac{7}{9}$        $\frac{2}{3}$

2.  $\frac{18}{20}$        $\frac{4}{5}$

3.  $\frac{18}{21}$        $\frac{5}{7}$

4.  $\frac{58}{63}$        $\frac{8}{9}$

5.  $\frac{6}{7}$        $\frac{7}{9}$

6.  $\frac{15}{21}$        $\frac{5}{7}$

Convert decimals to fractions and fractions to decimals.

Create a decimal by long dividing

$$\begin{array}{r} 3 \overline{) 3.00} \\ \underline{9} \phantom{00} \\ 21 \phantom{0} \\ \underline{30} \\ 0 \end{array} \quad \begin{array}{r} 0.3\bar{3} \end{array}$$

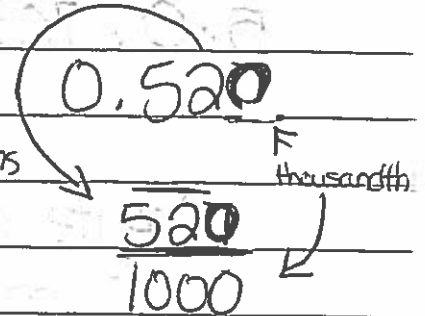
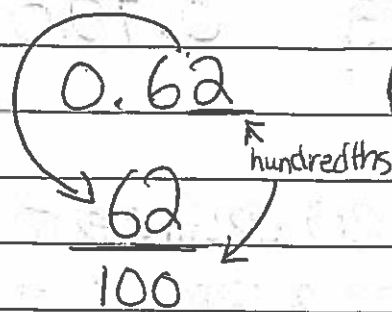
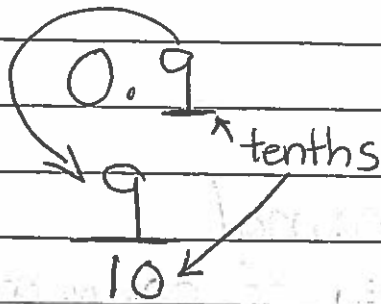
1.  $\frac{5}{7}$        $\square$

2.  $\frac{2}{8}$        $\square$

3.  $\frac{7}{11}$        $\square$

Convert the decimal into a fraction.

Look at the last place value filled. That is your bottom number, then write the number.



1)  $0.902 =$  \_\_\_\_\_

2)  $0.92 =$  \_\_\_\_\_

3)  $0.097 =$  \_\_\_\_\_

4)  $0.008 =$  \_\_\_\_\_

5)  $0.300 =$  \_\_\_\_\_

6)  $0.320 =$  \_\_\_\_\_

Compare decimals \* Look at place value by place value

$0.952 \square 0.99$

$0.952 < 0.99$

1.  $0.86 \quad 0.869$

$$2. 0.36 \quad 0.497$$

$$3. 0.742 \quad 0.099$$

$$4. 0.032 \quad 0.111$$

$$5. 0.703 \quad 0.720$$

Create an equivalent decimal

\* add a zero to the end of any number

$$0.32 = 0.320$$

$$0.7 = 0.70 = 0.700$$

$$1. 0.70 =$$

$$2. 0.01 =$$

$$3. 0.9 =$$

$$4. 0.21 =$$

Add and subtract decimals

\* Larger decimal on top

\* Line up the decimals and place values

\* Fill empty place value spots with zeroes

$$5629.320 - 423.06$$

$$\begin{array}{r} 5629.\overset{2}{3}20 \\ - 423.06\overset{0}{0} \\ \hline 5206.260 \end{array}$$

Add / Subtract

1.  $329.401 - 962.2$

2.  $329.401 + 295.72$

3.  $7652.70 - 3791.011$

4.  $7652.70 + 3791.011$

Name: \_\_\_\_\_

# Fractions and Decimals Unit Test Study Guide

**Lesson 1: Equivalent Fractions-** fractions that are the exact same when they are reduced to their LCM. To make an equivalent fraction you must times the numerator and denominator by the exact same number.

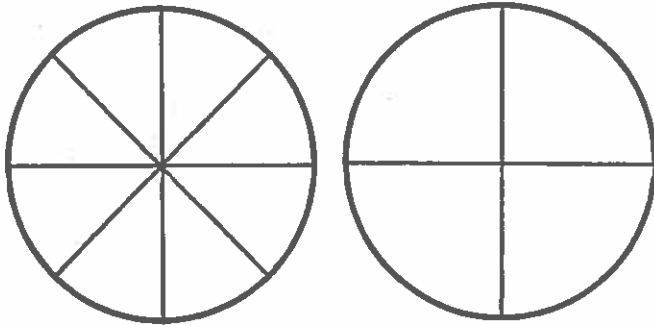
LCM : Lowest Common Multiple

$$\frac{5}{9} \xrightarrow{2} \frac{10}{18}$$

$$\frac{5}{9} \xrightarrow{3} \frac{15}{27}$$

$$\frac{12}{15} \xrightarrow{10} \frac{120}{150}$$

**Lesson 2: Comparing and Ordering Fractions – ALWAYS** make the denominator the exact same to prove the order of fractions. You can also draw a circle or rectangle into that fraction or draw a number line.






Name: \_\_\_\_\_

Lesson 3: No lesson 3 on the worksheet or textbook

### Lesson 4 : Relating Fractions to Decimals

Relate it to money

$4/10 = \$0.40 = 0.40$       It takes 10 dimes to make a dollar.

$3/4 = \$0.75 = 0.75$       It takes 4 quarters to make a dollar.

$3/20 = \$0.15 = 0.15$       It take 20 nickels to make one dollar.

$6/100 = \$0.06 = 0.06$       It takes 100 pennies to make one dollar.

Make the place value lines to see how many spots need to be filled. Add the number and fill the extra spots with zeroes.

$67/100 = \underline{\quad}.\underline{\quad}\underline{\quad}$

$67/100 = \underline{\quad}.\underline{6}\underline{7}$

$67/100 = \underline{0}.\underline{6}\underline{7}$

$3/10$  is 3 tenths or 0.3      (an equivalent decimal is 0.30, 0.300, etc)

$3/10 = \underline{\quad}.\underline{\quad}$

$3/10 = \underline{\quad}.\underline{3}$

$3/10 = \underline{0}.\underline{3}$

Memorize some of the main fractions

$1/2 = 0.5$  (0.50 equivalent)

$1/3 = 0.3\overline{3}$  ( $2/3$  is double  $1/3$ , so  $2/3 = 0.6\overline{6}$ )

$1/4 = 0.25$  (0.25 is added 4 times to make one so  $2/4 = 0.5$ ,  $3/4 = 0.75$ )

$1/5 = 0.2$  (0.20 equivalent) ( $2/5$  is  $0.2+0.2 = 0.4$  so,  $2/5$  is 0.4)

$1/6 = 0.1\overline{6}$

$1/10 = 0.1$

$1/8 = 0.125$

### Lesson 5: Fraction and Decimals benchmarks

When relating decimals to benchmarks, you find the closest benchmark to that decimal value and then count ahead or back.

When finding  $0.125 = 1/8$  you can do it 2 ways. You can break the line into 8.



Or you could look for a similar bench mark that is close to 0.125 like 0.1

0.1 0.125 will be approximately here.



### Lesson 6: Exploring to the thousands

$1/2 = 0.5 = 5/10 = 50/100 = 0.50 = 500/1000 = 0.500$  (these are all equivalent)

Make the place value lines to see how many spots need to be filled. Add the number and fill the extra spots with zeroes.

$$67/1000 = \underline{\quad}.\underline{\quad}\underline{\quad}\underline{\quad}$$

$$894/1000 = \underline{\quad}.\underline{\quad}\underline{\quad}\underline{\quad}$$

$$67/1000 = \underline{\quad}.\underline{\quad}\underline{6}\underline{7}$$

$$894/1000 = \underline{\quad}.\underline{8}\underline{9}\underline{4}$$

$$67/1000 = \underline{0}.\underline{0}\underline{6}\underline{7}$$

$$894/1000 = \underline{0}.\underline{8}\underline{9}\underline{4}$$

### Lesson 7: Compare and Ordering Decimals

When comparing and ordering fractions it is easiest if you make them have the same denominator first.

$$\frac{5}{12} \quad \frac{1}{6} \quad \frac{13}{24}$$

Find the number all the denominators can divide into.  
12, 6, and 24 all divide evenly into 24.

$$\frac{5 \times 2}{12 \times 2} = \frac{10}{24}$$

$$\frac{1 \times 4}{6 \times 4} = \frac{4}{24}$$

$$\frac{13 \times 1}{24 \times 1} = \frac{13}{24}$$

$\frac{13}{24}$  is the largest.



Name: \_\_\_\_\_

When Comparing and Ordering Decimals you look at the first number (farthest to the left) and see which number is the largest. Depending on if you are going from greatest to least or least to greatest, the largest number will be first or last.

Greatest to Least

0.589, 0.61, 0.119, 0.099

Look at the first number (the ones place)

0.589, 0.61, 0.119, 0.099 (in the ones place, the numbers are all zero so you look to the tenths place.

0.589, 0.61, 0.119, 0.099 ( the largest number is 0.6 so it is first in the line, then 0.5, then 0.1 and finally 0.0.

0.61, 0.589, 0.119, 0.099 (If it asked for least to greatest you would order it 0.099, 0.119, 0.589, then 0.61)

One more example: Least to greatest

0.638, 0.640, 0.629, 0.500

0.638, 0.640, 0.639, 0.599 (0.599 is the lowest number so it goes first, the other numbers all start with 6 so we must look at to the hundredths place.

0.599, 0.638, 0.640, 0.639 ( 0.63 is the lowest for two numbers, so for those two numbers we look to the thousands, but we know that 0.640 will be last because it is the largest of the last numbers.

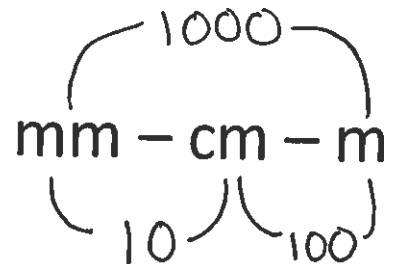
0.599, 0.638, 0.639, 0.640 (0.638 is the next lowest number.

0.599, 0.638, 0.639, 0.640

### Lesson 8: Using Decimals to Relate Units of Measurement

10mm = 1 cm      100mm = 1m      100 cm = 1m

0.1cm = 1 mm      0.01m = 1cm      0.001m = 1m



**Lesson 9: Relating Fractions and Decimals to Division Statements**

$5/12$  is the same as  $5 \div 12$  (proper fraction)

$12/5$  is the same as  $12 \div 5$  (improper fraction)

$2 \frac{2}{5}$  is a mixed fraction

**Lesson 10: Estimating Decimals****Estimate both numbers**

$$5.3 + 6.2$$

$$5 + 6 = 11$$

or

$$4.23 - 1.68$$

$$4 - 2 = 2$$

**Estimate one number**

$$5.3 + 6.2$$

$$5.3 + 6 = 11.3$$

$$5 + 6.2 = 11.2$$

or

$$4.23 - 1.68$$

$$4 - 1.68 = 2.32$$

$$4.23 - 2 = 2.23$$

**Lesson 11-13: Adding and Subtracting Decimals**

Align the place values and decimal then complete the question by dropping the decimal down and completing normally.

$$\begin{array}{r} + 5.3 \\ + 2.9 \\ \hline \end{array}$$

$$\begin{array}{r} + 5.3 \\ + 2.9 \\ \hline .2 \end{array}$$

$$\begin{array}{r} + 5.3 \\ + 2.9 \\ \hline 8.2 \end{array}$$

$$\begin{array}{r} 5.92 \\ - 1.09 \\ \hline \end{array}$$

$$\begin{array}{r} 5.92 \\ - 1.09 \\ \hline .3 \end{array}$$

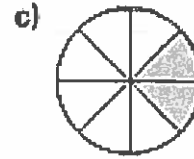
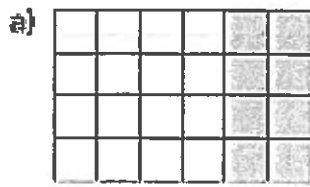
$$\begin{array}{r} 5.92 \\ - 1.09 \\ \hline 4.83 \end{array}$$

Practice some of your own here.

LESSON



1. Write as many different fractions as you can to describe the shaded part of each picture.



2. Find an equivalent fraction for each fraction.

a)  $\frac{2}{5}$

b)  $\frac{5}{8}$

c)  $\frac{30}{40}$

d)  $\frac{25}{50}$



3. Compare the fractions in each pair. Which strategies did you use?

a)  $\frac{3}{6}$  and  $\frac{1}{2}$

b)  $\frac{1}{8}$  and  $\frac{2}{16}$

c)  $\frac{3}{4}$  and  $\frac{5}{16}$

d)  $\frac{6}{8}$  and  $\frac{6}{16}$

4. Draw a number line like the one below.



Divide the number line to show halves, quarters, and sixths.  
Use the number line to order  $\frac{3}{4}$ ,  $\frac{1}{8}$ ,  $\frac{1}{2}$ , and  $\frac{5}{6}$  from least to greatest.



5. Represent each fraction on a hundredths grid. Then write each number as a decimal.

a)  $\frac{7}{25}$

b)  $\frac{3}{5}$

c)  $\frac{1}{4}$

d)  $\frac{9}{20}$

\* Add hundredths chart



6. Use benchmarks on a number line. Order the decimals in each set from least to greatest.

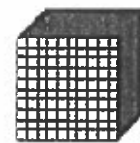
a) 0.90, 0.09, 0.81

b) 0.3, 0.33, 0.14

c) 0.56, 0.6, 0.5



7. Write a fraction and a decimal for each picture.



represents 1 whole.

1000

8. Write each fraction as a decimal.

a)  $\frac{55}{100}$

b)  $\frac{208}{1000}$

c)  $\frac{1}{4}$

d)  $\frac{9}{1000}$

## LESSON

9. Write each decimal as a fraction.

- a) 0.257                      b) 0.001                      c) 0.9                      d) 0.34

10. Write an equivalent decimal for each number.

- a) 0.7                      b) 0.50                      c) 1.84                      d) 2.100

11. Describe the value of each digit in 3.675.

7

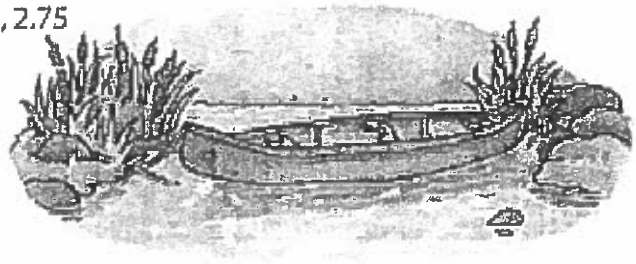
12. Use a number line to order the decimals from least to greatest.

- a) 0.24, 1.93, 1.9                      b) 2.051, 2.3, 2.75

8

13. A canoe is 5.67 m long.  
How many centimetres is that?

14. A nickel is about 21 mm wide.  
How many centimetres is that?



9

15. Five identical books cost \$33.  
How much does 1 book cost?

10

16. Estimate each sum or difference.

- a)  $2.48 \div 2.99$                       b)  $6.543 - 4.897$   
c)  $4.23 + 7.862$                       d)  $23.78 - 0.36$

11  
12  
13

17. Use the data in the table. For each type of pet,  
find the difference in the masses of the largest  
and smallest animals.

Animal	Mass (kg)	
	Smallest	Largest
Rabbit	0.397	11.991
Dog	0.113	155.582
Cat	1.361	44.452

18. Add or subtract.

- a)  $3.84 + 7.63$                       b)  $15.942 - 8.6$   
c)  $1.97 + 6.323$                       d)  $18.25 + 9.375$

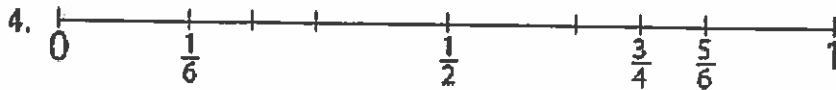
## Sample Solutions

2. For example:

a)  $\frac{4}{10}$    b)  $\frac{10}{16}$    c)  $\frac{3}{2}$    d)  $\frac{1}{2}$

3. a)  $\frac{1}{2} = \frac{4}{8}$ , so  $\frac{3}{8} < \frac{1}{2}$    b)  $\frac{1}{8} = \frac{2}{16}$ , so  $\frac{1}{8} = \frac{2}{16}$

c)  $\frac{3}{4} = \frac{12}{16}$ , so  $\frac{3}{4} > \frac{5}{16}$    d)  $\frac{6}{8} = \frac{12}{16}$ , so  $\frac{6}{8} > \frac{6}{16}$

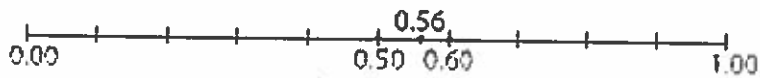
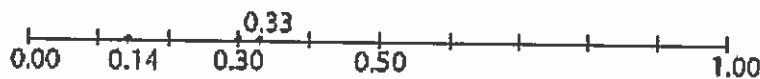
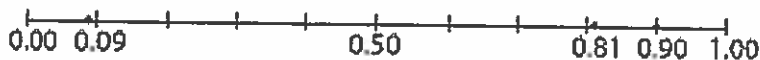


5. Student hundredths grids should show the following number of shaded squares and decimals:

a) 28 squares; 0.28   b) 60 squares; 0.60

c) 25 squares; 0.25   d) 45 squares; 0.45

6. a) b) c)

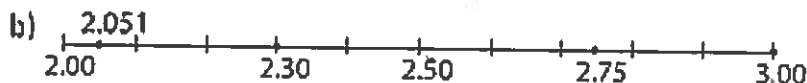
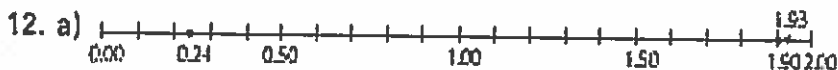


7. a)  $\frac{323}{1000}$ , 0.323   b)  $\frac{55}{1000}$ , 0.055

10. For example:

a) 0.70   b) 0.5   c) 1.840   d) 2.1

11. 3 = 3 ones, 6 = 6 tenths, 7 = 7 hundredths,  
5 = 5 thousandths



13. 1 m = 100 cm, so 5.67 m =  $5.67 \times 100$  cm = 567 cm

14. 10 mm = 1 cm, so 21 mm =  $21 \div 10$  cm = 2.1 cm

15.  $\$33 \div 5 = \$6.60$

16. For example:

a) About 5.50   b) About 1.500   c) About 12

d) About 23.50

17. rabbit: 11.594 kg

dog: 155.469 kg

cat: 43.091 kg

18. a) 11.47   b) 7.342   c) 8.293   d) 27.625

